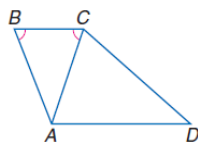


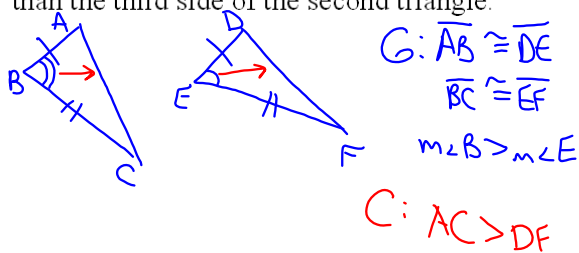
38. Given: $\angle B \cong \angle ACB$
 Prove: $AD + AB > CD$



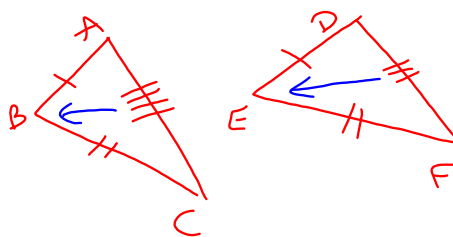
5.5 Inequalities Involving 2 Triangles

Theorem 5.13 SAS Inequality Theorem

(Hinge Theorem)—If two sides of one triangle are congruent to two sides of another triangle, but the included angle of the first triangle is greater than the included angle of the second, then the third side of the first triangle is longer than the third side of the second triangle.

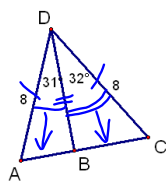


Theorem 5.14 SSS Inequality Theorem—If two sides of one triangle are congruent to two sides of another triangle, but the third side of the first triangle is longer than the third side of the second, then the included angle of the first triangle is larger than the included angle of the second triangle.



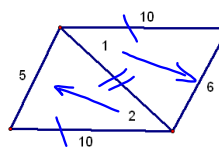
G: $\overline{AB} \cong \overline{DE}$
 $\overline{BC} \cong \overline{EF}$
 $AC > DF$
 Concl: $m\angle B > m\angle E$

Compare the listed sides or angles.



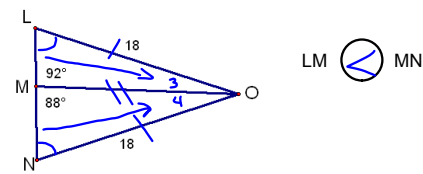
BC \bigcirc AB

Compare the listed sides or angles.



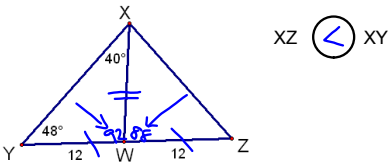
$m\angle 1$ \bigcirc $m\angle 2$

Compare the listed sides or angles.



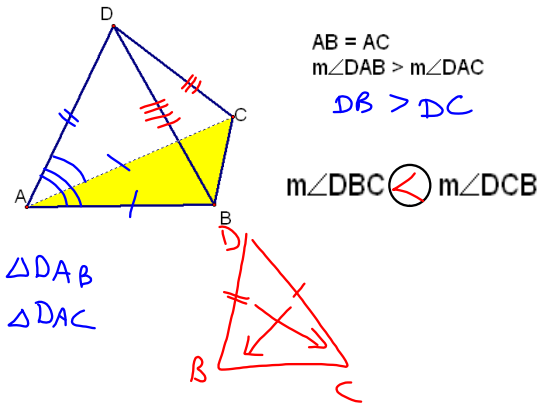
Determine which is greater
m∠3 or m∠4

Compare the listed sides or angles.

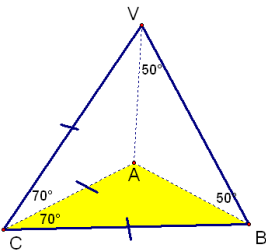


$$\begin{array}{r} 40 \\ + 48 \\ \hline 88 \end{array}$$

Compare the listed sides or angles.

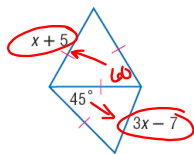


What is the longest segment?



Write an inequality to describe the possible values of x .

5.



$$x+5 > 3x-7$$

$$\begin{array}{r} -x \\ -x \end{array}$$

$$5 > 2x-7$$

$$\begin{array}{r} +7 \\ +7 \end{array}$$

$$12 > 2x$$

$$6 > x$$

Restrictions

$$x+5 > 0$$

$$x > -5$$

$$3x-7 > 0$$

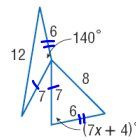
$$x > \frac{7}{3}$$

* ← Combine → $x < 6$

$$\frac{7}{3} < x < 6$$

Write an inequality to describe the possible values of x .

6.



$$140 > 7x+4$$

$$x < \frac{136}{7}$$

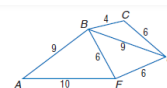
Restr.

$$x > -\frac{4}{7}$$

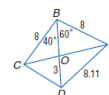
$$-\frac{4}{7} < x < \frac{136}{7}$$

HW p271
10-18, 20

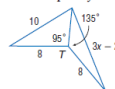
Write an inequality relating the given pair of angles or segment measures.

10. AB , FD 11. $m\angle BDC$, $m\angle FDB$ 12. $m\angle FBA$, $m\angle DBF$ 

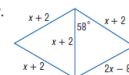
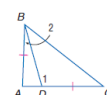
Write an inequality relating the given pair of angles or segment measures.

13. AD , DC 14. OC , OA 15. $m\angle AOD$, $m\angle AOB$ Write an inequality to describe the possible values of x .

16.



17.

**PROOF** Write a two-column20. Given: $\triangle ABC$
 $\overline{AB} \cong \overline{CD}$
Prove: $BC > AD$ 18. In the figure, $\overline{AM} \cong \overline{MB}$, $AC > BC$, $m\angle 1 = 5x + 20$ and $m\angle 2 = 8x - 100$. Write an inequality to describe the possible values of x .